

Notice of Allowability

Application No.

10/528,720

Examiner

Michael A. Lyons

Applicant(s)

LUTTGE ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to a miscellaneous incoming letter filed 17 January 2006.
2. ☒ The allowed claim(s) is/are 1-18.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date 100305
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

DETAILED ACTION

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

The application has been amended as follows:

Claims 1, 13, 16, and 17 are amended to correct minor matters of form not affecting the scope of the invention.

1. [A] An imaging system, comprising:
a non-destructive optical device that obtains information concerning a target object; and
an X-Y positioning system adapted to position one or both of the target object and the optical device to multiple pre-determined locations with movements smaller than the obtainable lateral resolution of the optical device.

13. The method of claim 11 further comprising deblurring the single combined image using a mathematical operation[s] selected from the group consisting of inverse filters, deconvolution filters, direct inverse filters, Wiener filters, regularized deconvolution filters, blind deconvolution filters, [Wavelet-based] wavelet-based inverse filters, and combinations thereof.

16. A method for producing images of [a] an optical device, the method comprising:
positioning one or both of the target object and the optical device to pre-determined offset locations more closely spaced than the obtainable resolution of the optical device;

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producing a plurality of images at each offset location from information generated by the optical device;

stacking the plurality of images [producing] produced at each offset location to remove noise; and

combining the stacked images into a single combined image with a pixel spacing less than the pixel spacing of the pixel spacing of the plurality of images [producing] produced at each offset location.

17. The method of claim 16 further comprising deblurring the single combined image using a mathematical operation[s] selected from the group consisting of inverse filters, deconvolution filters, direct inverse filters, Wiener filters, regularized deconvolution filters, blind deconvolution filters, [Wavelet-based] wavelet-based inverse filters, and combinations thereof.

Allowable Subject Matter

Claims 1-18 are allowed in view of the prior art.

The following is an examiner's statement of reasons for allowance:

As to claim 1, the prior art of record, taken either alone or in combination, fails to disclose or render obvious an imaging system comprising, among other essential features, an X-Y positioning system that positions one or both of the target object and a non-destructive optical device to multiple pre-determined locations with movements smaller than the obtainable lateral resolution of the optical device, in combination with the rest of the limitations of the above claim.

As to claims 11, 14, and 16, the prior art of record, taken either alone or in combination, fails to disclose or render obvious a method for producing high-resolution images of a target

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object with a non-destructive optical device (claim 11), a non-destructive optical imaging system (claim 14), and a method for producing images of a target object with an optical device (claim 16), the methods and apparatus comprising, among other essential elements, means for positioning one or both of the target object and the non-destructive optical device to pre-determined offset locations more closely spaced than the obtainable resolution of the optical device so that images can be produced from information generated by the optical device at the offset positions, in combination with the rest of the limitations of the above claim.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US Pat. 6,771,350 to Nishinaga.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael A. Lyons whose telephone number is 571-272-2420. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley can be reached on 571-272-2800 ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to read "Michael A. Lyons", followed by a large, stylized circular flourish.

Michael A. Lyons
Patent Examiner
August 20, 2007